

**CLAIMS**

1. A boost system for enhancing communication between a cellular telephone and a network base station comprising:

5 a. a cradle that couples a cellular telephone handset to the power boost system;

b. an antenna; and

10 c. a booster amplifier electrically coupled to said cradle and said antenna, said booster amplifier having a receive side, a transmit side and a gain controller, said receive side having a low noise amplifier, a gain circuit and a buffer amplifier through which signals received from the base station are passed to the cradle and a cellular telephone coupled thereto, 15 said transmit side having a first directional coupler and a detector which transmit a signal indicative of the cellular telephone's output power before it is boosted, a variable gain element controlled by said gain controller for controlling the output power, at least one amplifier and a second directional coupler and detector which 20 transmit a signal indicative of the output power after it is boosted to the gain controller, said gain controller capable of processing said signals to control the variable gain element on the receive side and the 25 variable gain element on the transmit side.

2. A power boost system for enhancing communications between a cellular telephone handset and a network base station comprising a booster amplifier having:

30 a. a receive side used to process and deliver to the handset signals received from the base station, said receive side including at least one amplifier and a gain element;

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b. a transmit side used to process and deliver to the base station signals from the handset, said transmit side having a variable gain element, at least one amplifier, a first sensor which senses the power of signals transmitted by the handset before they are boosted and a second sensor for sensing the power of such signals transmitted by the handset after they are boosted; and

c. a gain controller for controlling the variable gain element of the transmit side to control the level to which such signals transmitted by the handset are boosted.

3. The power boost element of claim 2 wherein said gain element of the receive side is a variable gain element and is controlled by said gain controller so that the gain provided by the receive side mirrors the gain provided by the transmit side.

4. The power boost system of claim 2 wherein at least one of said first and second sensors comprises a directional coupler and a detector.

5. A power boost system for enhancing communications between a handset and a network base station of a cellular network comprising a booster amplifier having:

a. at least one variable gain element controlled by a gain controller;

b. at least one amplifier which cooperates with the variable gain element to boost the power of an input signal generated by the handset to provide an output signal to the network base station;

c. a first sensor that sends messages to the gain controller indicative of the power of the input signal generated by the handset before it is boosted; and

5 d. a second sensor that sends messages to the gain controller indicative of the power level of the signal generated by the handset after it is boosted; said gain controller dynamically adjusting the power of the output signal over a predetermined power leveling range.

6. The power boost system of claim 4 wherein the maximum power of the output signal is limited to a predetermined threshold.

10 7. The power boost system of claim 5 wherein said predetermined threshold is 2 watts.

15 8. The power boost system of claim 5 wherein the output signal is delivered at said predetermined threshold when the boost system is powered up and the gain controller then reduces the gain of the variable gain element to reduce the system gain in response to an increase in the power of the input signal.

20 9. A power boost system for enhancing communications between a cellular telephone handset and a network base station comprising a booster amplifier having:

25 a. a receive side used to process and deliver to the handset signals received from the base station, said receive side including at least one amplifier and a gain element;

30 b. a transmit side used to process and deliver to the base station signals from the handset, said transmit side having a variable gain element, at least one amplifier, a first sensor that senses the power of signals transmitted by the handset before they are boosted and a second sensor for sensing the power of such signals transmitted by the handset after they are boosted;

c. a ground plane separating the transmit

